

5. Document ID: US 6688517 B1

L4: Entry 5 of 40

File: USPT

Feb 10, 2004

US-PAT-NO: 6688517

DOCUMENT-IDENTIFIER: US 6688517 B1

TITLE: Electronic voting system

DATE-ISSUED: February 10, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
McClure; Neil	Lafayette	CO		
Lohry; Kermit	Boulder	CO		

US-CL-CURRENT: 235/51; 235/386, 235/57

ABSTRACT:

An electronic voting system with a headquarters unit, a plurality of precinct units, a plurality of voting stations associated with each precinct unit, and a plurality of mobile memory units (MMUs) to contain data that can be transported back and forth between the headquarters unit and the precinct units. The MMUs include FLASH memory, wherein each memory location can be written to once and read many times. Each memory location can thus only be subsequently written to after all the data in the entire FLASH memory has been erased. The system includes the ability to store images of the cast ballots at multiple locations for verification and authentication. The system includes the ability to store a direct representation of the voter's selections as displayed to the voter as a redundant image of the ballot. The system also includes the ability for each voting station to automatically read the particular ballot overlay thereon to verify the proper ballot style is being used. The system also includes the ability to communicate between the various components of the system when the components are in a storage configuration. The various components of the system can be folded from a deployed configuration into the storage configuration so that the largest two-dimensional aspect in the storage configuration is a fraction of that in the deployed configuration. The system also includes a remote sensing terminal and a text-to-speech converter for use by disabled persons. An absentee ballot that can be read by the voting system is also provided as is the ability to vote over a computer network, such as the Internet.

10 Claims, 40 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 29

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Drawn D
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 6. Document ID: US 6678499 B1

L4: Entry 6 of 40

File: USPT

Jan 13, 2004

US-PAT-NO: 6678499

DOCUMENT-IDENTIFIER: US 6678499 B1

TITLE: Method and system for examinations

DATE-ISSUED: January 13, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Silverbrook; Kia	Balmain			AU
Lapstun; Jacqueline Anne	Rodd Point			AU
Lapstun; Paul	Rodd Point			AU

US-CL-CURRENT: 434/350; 434/351, 434/362, 434/363

ABSTRACT:

The present invention concerns a system and method for enabling examinations. Employing the invention involves the use of one or more forms which support interaction with a computer system or network. Each form is printed on sheet material such as paper and includes coded data which allows it to be used to interact with the computer system via a sensing device operated by a user.

Specifically, in one embodiment, the method includes the steps of providing a user involved in an examination exercise with an exercise form containing coded data indicative of an identity of the exercise form and of at least one reference point of the exercise form, and receiving, in a computer system, response data from a sensing device operable by said user, said data regarding the identity of the exercise form and a position of the sensing device relative to the exercise form, the sensing device, when placed in an operative position relative to the exercise form, sensing the coded data and providing said response data from said coded data.

In one aspect, the invention provides a system and method for enabling examinees to sit examinations in a controlled manner while they may be physically distant from the classroom. The examination paper may take the format of a multiple selection paper, a free response paper or a combination of the two, and the system of the invention can be utilized in the administration of the examination.

46 Claims, 54 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 41

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequence](#) | [Assignments](#) | [Claims](#) | [RWC](#) | [Drawn D](#)

7. Document ID: US 6671818 B1

L4: Entry 7 of 40

File: USPT

Dec 30, 2003

US-PAT-NO: 6671818

DOCUMENT-IDENTIFIER: US 6671818 B1

**** See image for Certificate of Correction ****

TITLE: Problem isolation through translating and filtering events into a standard object format in a network based supply chain

DATE-ISSUED: December 30, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Mikurak; Michael G.	Hamilton	NJ		

US-CL-CURRENT: 714/4; 714/43, 714/48

ABSTRACT:

A system, method and article of manufacture are provided for life cycle network asset management in a network based supply chain. In accordance with an embodiment of the present invention, the supply chain network is monitored, and events from network assets are received, filtered, and correlated, whereby problems with network assets are further isolated. The filtered and isolated events problems are then translated into a standard object format for facilitating the determination of the life cycle of problem network assets, wherein the events are translated by a comprehensive library of all possible message types provided by the custom software interfaces. In accordance with an embodiment of the present invention, the network assets include both packet-switched and circuit-switched network assets, and the events are received by custom software interfaces which communicate directly with the network assets.

3 Claims, 144 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 130

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequents	Disclosures	Claims	KMC	Drawn D
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 8. Document ID: US 6664897 B2

L4: Entry 8 of 40

File: USPT

Dec 16, 2003

US-PAT-NO: 6664897

DOCUMENT-IDENTIFIER: US 6664897 B2

TITLE: Method and system for livestock data collection and management

DATE-ISSUED: December 16, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Pape; William R.	Los Ojos	NM	87551	
Morrison; Matthew J.	Johnstown	CO	80534	
Dolan; Andrew J.	Arvada	CO	80004	
Curkendall; Leland D.	Cheyenne	WY	82001	
Armentrout; Olin M.	Alpharetta	GA	30004	

US-CL-CURRENT: 340/573.3; 119/51.02

ABSTRACT:

An efficient method and apparatus for livestock data collection and management is described to provide quality assurance source verification data and performance

tracking for individual animals throughout the production cycle. Individual animal data is efficiently collected, transferred, and shared in a transactional, event-oriented, row-oriented structure with few columns without need for creating relational structures. The BeefLink.TM. software includes components for data collection and real-time data lookup components; share, switch, route, and interface components; extract, transform, and load components; and report and analyze data components. Embodiments include data acquisition from multiple RFID reader locations; a web-based information system for a beef marketing alliance; value-based procurement, and supply chain management.

2 Claims, 63 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 53

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Assignments](#) | [Claims](#) | [KIND](#) | [Drawn](#) |

9. Document ID: US 6662998 B2

L4: Entry 9 of 40

File: USPT

Dec 16, 2003

US-PAT-NO: 6662998

DOCUMENT-IDENTIFIER: US 6662998 B2

TITLE: Electronic voting system

DATE-ISSUED: December 16, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
McClure; Neil	Lafayette	CO		
Lohry; Kermit	Boulder	CO		

US-CL-CURRENT: 235/51; 235/386

ABSTRACT:

An electronic voting system with a headquarters unit, a plurality of precinct units, a plurality of voting stations associated with each precinct unit, and a plurality of mobile memory units (MMUs) to contain data that can be transported back and forth between the headquarters unit and the precinct units. The MMUs include FLASH memory, wherein each memory location can be written to once and read many times. Each memory location can thus only be subsequently written to after all the data in the entire FLASH memory has been erased. The system includes the ability to store images of the cast ballots at multiple locations for verification and authentication. The system includes the ability to store a direct representation of the voter's selections as displayed to the voter as a redundant image of the ballot. The system also includes the ability for each voting station to automatically read the particular ballot overlay thereon to verify the proper ballot style is being used. The system also includes the ability to communicate between the various components of the system when the components are in a storage configuration. The various components of the system can be folded from a deployed configuration into the storage configuration so that the largest two-dimensional aspect in the storage configuration is a fraction of that in the deployed configuration. The system also includes a remote sensing terminal and a text-to-

speech converter for use by disabled persons. An absentee ballot that can be read by the voting system is also provided as is the ability to vote over a computer network, such as the Internet.

6 Claims, 41 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 29

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequencies](#) | [Attachments](#) | [Claims](#) | [KINIC](#) | [Drawn De](#)

10. Document ID: US 6641033 B2

L4: Entry 10 of 40

File: USPT

Nov 4, 2003

US-PAT-NO: 6641033

DOCUMENT-IDENTIFIER: US 6641033 B2

TITLE: Electronic voting system

DATE-ISSUED: November 4, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
McClure; Neil	Lafayette	CO		
Lohry; Kermit	Boulder	CO		

US-CL-CURRENT: 235/51; 235/386, 235/57

ABSTRACT:

An electronic voting system with a headquarters unit, a plurality of precinct units, a plurality of voting stations associated with each precinct unit, and a plurality of mobile memory units (MMUs) to contain data that can be transported back and forth between the headquarters unit and the precinct units. The MMUs include FLASH memory, wherein each memory location can be written to once and read many times. Each memory location can thus only be subsequently written to after all the data in the entire FLASH memory has been erased. The system includes the ability to store images of the cast ballots at multiple locations for verification and authentication. The system includes the ability to store a direct representation of the voter's selections as displayed to the voter as a redundant image of the ballot. The system also includes the ability for each voting station to automatically read the particular ballot overlay thereon to verify the proper ballot style is being used. The system also includes the ability to communicate between the various components of the system when the components are in a storage configuration. The various components of the system can be folded from a deployed configuration into the storage configuration so that the largest two-dimensional aspect in the storage configuration is a fraction of that in the deployed configuration. The system also includes a remote sensing terminal and a text-to-speech converter for use by disabled persons. An absentee ballot that can be read by the voting system is also provided as is the ability to vote over a computer network, such as the Internet.

29 Claims, 41 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 29

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMNC	Drawn D
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11. Document ID: US 6633878 B1

L4: Entry 11 of 40

File: USPT

Oct 14, 2003

US-PAT-NO: 6633878

DOCUMENT-IDENTIFIER: US 6633878 B1

TITLE: Initializing an ecommerce database framework

DATE-ISSUED: October 14, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Underwood; Roy Aaron	Long Grove	IL		

US-CL-CURRENT: 707/100; 707/1, 707/102, 707/205

ABSTRACT:

A system, method and article of manufacture are provided for initializing a database used with an issue tracker. The issue tracker receives information relating to a plurality of issues from a plurality of users, displays the information relating to the issues, and allows the browsing of the information relating to each of the issues. To initialize the database, the information relating to the issues is stored in a first database. A second database is also provided that stores tables including: a plurality of user interfaces; and/or application logic for accessing the information in the first database. The tables of the second database are reconfigured upon migrating the first database from a first folder to a second folder.

15 Claims, 179 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 111

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMNC	Drawn D
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12. Document ID: US 6629081 B1

L4: Entry 12 of 40

File: USPT

Sep 30, 2003

US-PAT-NO: 6629081

DOCUMENT-IDENTIFIER: US 6629081 B1

** See image for Certificate of Correction **

TITLE: Account settlement and financing in an e-commerce environment

DATE-ISSUED: September 30, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Cornelius; Richard D.	Santa Monica	CA		
Stepnyczka; Andreas	San Francisco	CA		
Chu; Kevin	Atlanta	GA		

US-CL-CURRENT: 705/30

ABSTRACT:

A system, method and article of manufacture are provided for account settlement utilizing a network. First, a buyer is allowed to select from a group of options in order to settle an account utilizing a network. The options include settling a minimum balance, partially settling, settling a full balance, and applying for an import loan on payment due date. The selected option is then received utilizing the network. Finance interest may then be booked against the buyer for an unpaid portion of the account if the selected option includes either settling a minimum balance or partially settling. If the selected option includes settling a full balance, the account may be reconciled. On the other hand, if the selected option includes applying for an import loan on payment due date, an import loan may be booked and a credit line may be transferred to a trade loan line.

18 Claims, 112 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 105

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequencies](#) | [Attachments](#) | [Claims](#) | [KMC](#) | [Drawn D-](#)

 13. Document ID: US 6628671 B1

L4: Entry 13 of 40

File: USPT

Sep 30, 2003

US PAT-NO: 6628671

DOCUMENT-IDENTIFIER: US 6628671 B1

TITLE: Instant activation of point-to point protocol (PPP) connection using existing PPP state

DATE-ISSUED: September 30, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Dynarski; Richard J.	Glen Ellyn	IL		
Harper; Matthew	Arlington Heights	IL		
Bezaitis; Andrew	Chicago	IL		
Xu; Yingchun	Buffalo Grove	IL		
Peirce, Jr.; Kenneth L.	Barrington	IL		

US-CL-CURRENT: 370/469; 370/389

ABSTRACT:

A network access server providing remote access to an IP network for a remote client initiates a PPP connection for a remote client quickly, and without requiring re-negotiation of Link Control Protocols and Network Control Protocols. The network access server has a PPP session with the remote client go dormant, for example when the user is a wireless user and goes out of range of a radio tower and associated base station. The network access server does not get rid of the PPP state for the dormant session, but rather switches that PPP state to a new session, such as when the client moves into range of a different radio tower and associated base station and initiates a new active session on the interface to the wireless network. The switching of PPP states may be within a single network access server, or from one network access server to another. This "context switching" of the active PPP session allows the mobile user to seamlessly move about the wireless network without having to re-negotiate Link Control Protocols and Network Control Protocols every time they move out of range of one radio tower and into range of another radio tower.

11 Claims, 6 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 6

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequence](#) | [Assignees](#) | [Claims](#) | [KMC](#) | [Drawn D](#)

14. Document ID: US 6609128 B1

L4: Entry 14 of 40

File: USPT

Aug 19, 2003

US-PAT-NO: 6609128

DOCUMENT-IDENTIFIER: US 6609128 B1

TITLE: Codes table framework design in an E-commerce architecture

DATE-ISSUED: August 19, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Underwood; Roy Aaron	Long Grove	IL		

US-CL-CURRENT: 707/10; 707/200

ABSTRACT:

A system, method and article of manufacture are provided for maintaining application consistency. First, a table of codes and associated text phrases are provided. Such table of codes is stored on a local storage medium within an e-commerce computer architecture. Next, the table of codes is accessed on the local storage medium within the e-commerce computer architecture. One of the text phrases is subsequently retrieved by selecting a corresponding one of the codes of the table. During operation, modification of the text phrases associated with each of the codes of the table is permitted. A plurality of services are executed, including retrieving a single one of the text phrases, retrieving all of the text phrases in response to a single command, updating a single code and text phrase combination, updating all of the code and text phrase combinations, naming the table, adding a new code and text phrase combination, removing one of the code and text phrase combination, and adding another table.

15 Claims, 179 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 111

Full	Title	Citation	Front	Review	Classification	Date	Reference	Searcher	Attachments	Claims	KMNC	Dra
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15. Document ID: US 6606744 B1

L4: Entry 15 of 40

File: USPT

Aug 12, 2003

US-PAT-NO: 6606744

DOCUMENT-IDENTIFIER: US 6606744 B1

TITLE: Providing collaborative installation management in a network-based supply chain environment

DATE-ISSUED: August 12, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Mikurak; Michael G.	Hamilton	NJ		

US-CL-CURRENT: 717/174; 705/26, 717/178

ABSTRACT:

A system, method and article of manufacture are provided for collaborative installation management in a network-based supply chain environment. According to an embodiment of the invention, telephone calls, data and other multimedia information are routed through a network system which includes transfer of information across the internet utilizing telephony routing information and internet protocol address information. The system includes integrated Internet Protocol (IP) telephony services allowing a user of a web application to communicate in an audio fashion in-band without having to pick up another telephone. Users can click a button and go to a call center through the network using IP telephony. The system invokes an IP telephony session simultaneously with the data session, and uses an active directory lookup whenever a user uses the system. Users include service providers and manufacturers utilizing the network-based supply chain environment.

18 Claims, 130 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 130

Full	Title	Citation	Front	Review	Classification	Date	Reference	Searcher	Attachments	Claims	KMNC	Dra
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16. Document ID: US 6606304 B1

L4: Entry 16 of 40

File: USPT

Aug 12, 2003

US-PAT-NO: 6606304

DOCUMENT-IDENTIFIER: US 6606304 B1

TITLE: System for real-time monitor and response

DATE-ISSUED: August 12, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Grinter; Richard C.	Arlington	TX		
Alvarez; David	Plano	TX		

US-CL-CURRENT: 370/252; 340/573.4, 370/386

ABSTRACT:

A data and object monitoring and response system comprising a three tier infrastructure for optimization of interoperability and task specific adaptability. The system gathers information from a plurality of distributed data gathering units and assimilates, processes, analyzes and distributes the gathered data within a common system with rule based data processing for coordinated response to the data. The data gathering units can be locally distributed or widely disbursed. The information gathered can be real-time collection of event data, historical data, systems monitoring, or other data. Regardless of the specific nature of the data, the system taught in the present invention, addresses a number of common problems associated with the collection, assimilation, processing of data. By dividing the system into a three tier interactive structure, the data can be gathered, evaluated and processed independently and efficiently and appropriate response can be effectively implemented. The processing tier, which includes the rules for analysis of the data, exists independent of the operator interface and data gathering tiers. A wide diversity of data collection equipment can be accommodated without modification of the operator interface or the processing tier. Processing rules can be modified without altering the collection and handling of data, and a commonality of data structure eliminates multiple polling of collected data sets.

8 Claims, 5 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 5

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Searches](#) | [Attachments](#) | [Claims](#) | [KWM](#) | [Drawn De](#)

17. Document ID: US 6601233 B1

L4: Entry 17 of 40

File: USPT

Jul 29, 2003

US-PAT-NO: 6601233

DOCUMENT-IDENTIFIER: US 6601233 B1

TITLE: Business components framework

DATE-ISSUED: July 29, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
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Underwood; Roy Aaron

Long Grove IL

US-CL-CURRENT: 717/102; 717/100, 717/101, 717/103, 717/104, 717/106, 717/107

ABSTRACT:

A method of generating software based on business components. A plurality of logical business components in a business are first defined with each business component having a plurality of capabilities. Next, functional interrelationships are identified between the logical business components. Code modules are then generated to carry out the capabilities of the logical business components and the functional interrelationships between the logical business components, wherein the code modules represent a transformation of the logical business components to their physical implementation, while ensuring the capabilities that are carried out by each code module are essentially unique to the logical business component associated with the code module. Next, the functional aspects of the code modules and the functional relationships of the code modules are tested. The code modules are then subsequently deployed in an e-commerce environment.

18 Claims, 177 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 111

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequencies	Attachments	Claims	KOMC	Drawn D
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 18. Document ID: US 6581824 B1

L4: Entry 18 of 40

File: USPT

Jun 24, 2003

US-PAT-NO: 6581824

DOCUMENT-IDENTIFIER: US 6581824 B1

TITLE: Electronic voting system

DATE-ISSUED: June 24, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
McClure; Neil	Lafayette	CO		
Lohry; Kermit	Boulder	CO		

US-CL-CURRENT: 235/51; 235/50A, 235/50B, 235/50R

ABSTRACT:

An electronic voting system with a headquarters unit, a plurality of precinct units, a plurality of voting stations associated with each precinct unit, and a plurality of mobile memory units (MMUs) to contain data that can be transported back and forth between the headquarters unit and the precinct units. The MMUs include FLASH memory, wherein each memory location can be written to once and read many times. Each memory location can thus only be subsequently written to after all the data in the entire FLASH memory has been erased. The system includes the ability to store images of the cast ballots at multiple locations for verification

and authentication. The system includes the ability to store a direct representation of the voter's selections as displayed to the voter as a redundant image of the ballot. The system also includes the ability for each voting station to automatically read the particular ballot overlay thereon to verify the proper ballot style is being used. The system also includes the ability to communicate between the various components of the system when the components are in a storage configuration. The various components of the system can be folded from a deployed configuration into the storage configuration so that the largest two-dimensional aspect in the storage configuration is a fraction of that in the deployed configuration. The system also includes a remote sensing terminal and a text-to-speech converter for use by disabled persons. An absentee ballot that can be read by the voting system is also provided as is the ability to vote over a computer network, such as the Internet.

6 Claims, 40 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 29

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequenced](#) | [Attachment](#) | [Claims](#) | [KUDC](#) | [Drawn](#)

19. Document ID: US 6578021 B1

L4: Entry 19 of 40

File: USPT

Jun 10, 2003

US-PAT-NO: 6578021

DOCUMENT-IDENTIFIER: US 6578021 B1

TITLE: Method and system for classifying network devices in virtual LANs

DATE-ISSUED: June 10, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Barillaud; Franck	Austin	TX		

US-CL-CURRENT: 706/20

ABSTRACT:

Network management information stored by network devices in a switched network is obtained at a network management workstation. This is information that relates to the activity of the network devices on the network, such as the logical address of the network devices in communication with other devices. For TCP/IP networks utilizing the NMP protocol, this information is stored in the MIB or the RMON matrix group variables. This information feeds a neural network. The output of the neural network is a list of network devices grouped in virtual LANs (VLANs) such that network devices communicating, or having recently communicated, are grouped in the same VLAN. The network management information is periodically updated so the VLAN grouping can also be periodically refreshed to reflect current network device activity and thus optimize the network bandwidth.

26 Claims, 21 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 16

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMPC	Dra
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20. Document ID: US 6573907 B1

L4: Entry 20 of 40

File: USPT

Jun 3, 2003

US-PAT-NO: 6573907

DOCUMENT-IDENTIFIER: US 6573907 B1

TITLE: Network distribution and management of interactive video and multi-media containers

DATE-ISSUED: June 3, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Madrane; Nabil	Cassablanca			MA

US-CL-CURRENT: 345/719; 345/716, 345/720, 345/721, 345/723, 345/726, 345/733,
709/217, 715/512, 715/513

ABSTRACT:

Interactive interfaces to video information provide a displayed view of a quasi-object called a root image. The root image consists of a plurality of basic frames selected from the video information, arranged such that their respective x and y directions are aligned with the x and y directions in the root image and the z direction in the root image corresponds to time, such that base frames are spaced apart in the z direction of the root image in accordance with their time separation. The displayed view of the root image changes in accordance with a designated viewing position, as if the root image were a three-dimensional object. The user can manipulate the displayed image by designating different viewing positions, selecting portions of the video information for playback and by special effects, such as cutting open the quasi-object for a better view. A toolkit permits interface designers to design such interfaces, notably so as to control the types of interaction which will be possible between the interface and an end user. Implementations of the interfaces including editors and viewers are also disclosed.

32 Claims, 61 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 39

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMPC	Dra
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21. Document ID: US 6532465 B2

L4: Entry 21 of 40

File: USPT

Mar 11, 2003

US-PAT-NO: 6532465

DOCUMENT-IDENTIFIER: US 6532465 B2

TITLE: Operational system for operating on client defined rules

DATE-ISSUED: March 11, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Hartley; Bruce	Elbert	CO	80106	
Ricotta; Frank	Colorado Springs	CO	80919	
Vanderwall; Jim	Denver	CO	80218	
Locke; Tony	Colorado Springs	CO	80920	
Perkins; Tony	Northglenn	CO	80234	
Brown; Rodney	Highlands Ranch	CO	80126	

US-CL-CURRENT: 707/10; 718/1

ABSTRACT:

The disclosure includes a computational system implemented with respect to a novel computational architecture for operating an externally-defined data based on client-defined rules. In one of the implementations, the architecture is utilized in a billing and customer service program. The architecture includes a engine unit which includes a number of processing modules which internally operate on generic data units that are independent of the particular application. A metadata engine receives externally-defined data and relates the externally-defined data and the relates the externally-defined data to the generic data units for use for the engine unit. A rules-based engine provides to the engine unit information related to the client defined rules. In this manner, the engine unit can be reused in a large part in a variety of different environments.

35 Claims, 19 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 19

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Assignees](#) | [Attachments](#) | [Claims](#) | [KMC](#) | [Draw. D](#)

22. Document ID: US 6523027 B1

L4: Entry 22 of 40

File: USPT

Feb 18, 2003

US-PAT-NO: 6523027

DOCUMENT-IDENTIFIER: US 6523027 B1

TITLE: Interfacing servers in a Java based e-commerce architecture

DATE-ISSUED: February 18, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Underwood; Roy Aaron	Long Grove	IL		

US-CL-CURRENT: 707/4; 707/10, 707/100

ABSTRACT:

A system, method and article of manufacture are provided for providing an interface between a first server and a second server with a proxy component situated therebetween. Initially, a request for a business object is identified by an application on the first server. The first server is then connected to the second server. Next, selection criteria from the first server is transmitted to the second server. In response to the selection criteria, the first server receives a first recordset and a second recordset from the second server. Business data is included in the first recordset and result codes are included in the second recordset. The first and second recordsets are mapped to the business object and the business object is sent to the application on the first server.

18 Claims, 179 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 111

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Section 111](#) | [Attorneys](#) | [Claims](#) | [KWMC](#) | [Drawn D](#)

 23. Document ID: US 6516236 B1

L4: Entry 23 of 40

File: USPT

Feb 4, 2003

US-PAT-NO: 6516236

DOCUMENT-IDENTIFIER: US 6516236 B1

TITLE: Motion control systems

DATE-ISSUED: February 4, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Brown; David W.	Bingen	WA		
Clark; Jay S.	Bingen	WA		

US-CL-CURRENT: 700/56; 700/87

ABSTRACT:

A system for motion control in which an application is developed that is independent from the actual motion control hardware used to implement the system. The system comprises a software system that employs an application programming interface comprising component functions and a service provider interface comprising driver functions. A system programmer writes an application that calls the component functions. Code associated with the component functions relates these functions to the driver functions. A hardware designer writes driver code that implements the driver functions on a given motion control hardware product. The driver functions are separated into core and extended driver functions. All software drivers implement the core driver functions, while the software drivers need not contain code for implementing the extended driver functions. If the software driver does not contain code to implement an extended driver function, the functionality of the extended driver function is obtained through a combination of core driver functions. The system programmer may also select one or more streams that allow the control commands to be communicated to, and response data to be

communicated from, motion control hardware.

10 Claims, 72 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 64

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#) | [Claims](#) | [KMC](#) | [Drawn D...](#)

24. Document ID: US 6513058 B2

L4: Entry 24 of 40

File: USPT

Jan 28, 2003

US-PAT-NO: 6513058

DOCUMENT-IDENTIFIER: US 6513058 B2

TITLE: Distribution of motion control commands over a network

DATE-ISSUED: January 28, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Brown; David W.	Bingen	WA		
Clark; Jay S.	Bingen	WA		

US-CL-CURRENT: 709/201; 700/1, 700/19, 700/56, 709/230

ABSTRACT:

A system for allowing an application program to communicate with any one of a group of supported hardware devices comprising a software system operating on at least one workstation and a network communications protocol. The software system includes a control command generating module for generating control commands based on component functions of an application program, component code associated with the component functions, and the driver code associated with software drivers associated with the hardware devices. The network communication protocol allows the control commands to be communicated from the control command generating module to at least one of the supported hardware devices over the network.

5 Claims, 76 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 68

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#) | [Claims](#) | [KMC](#) | [Drawn D...](#)

25. Document ID: US 6466571 B1

L4: Entry 25 of 40

File: USPT

Oct 15, 2002

US-PAT-NO: 6466571

DOCUMENT-IDENTIFIER: US 6466571 B1

TITLE: Radius-based mobile internet protocol (IP) address-to-mobile identification number mapping for wireless communication

DATE-ISSUED: October 15, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Dynarski; Richard J.	Glen Ellyn	IL		
Harper; Matthew	Arlington Heights	IL		
Xu; Yingchun	Buffalo Grove	IL		
Bezaitis; Andrew	Chicago	IL		

US-CL-CURRENT: 370/352; 370/389, 455/567

ABSTRACT:

A method of finding a mobile wireless communications device when an Internet Protocol (IP) packet from a remote user is sent to the device over an IP network. The mobile device does not have to register with the IP network in order to receive the IP. The method comprises the steps of receiving the IP packet at a home agent associated with a wireless communications network. The IP packet includes an IP address assigned to the device. If there is no current mobility binding record for the mobile device, instead of dropping the packet the home agent sends an access-request packet, containing the IP address, to an authentication server. The authentication server, e.g., a RADIUS server, maintains a table mapping the IP address for the device to an identification number uniquely associated with the device, such as the device's International Mobile Subscriber Identity number. The authentication server sends an access-accept packet to the home agent in the event that the device is authorized to receive the IP packet, in which case the access-accept packet includes the identification information. The home agent uses the identification number to locate, page and automatically connect the wireless device to the IP network via an InterWorking Unit (IWU) configured as a IP network access server.

11 Claims, 7 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 7

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#) | [Claims](#) | [KMC](#) | [Drawn D](#)

26. Document ID: US 6453356 B1

L4: Entry 26 of 40

File: USPT

Sep 17, 2002

US-PAT-NO: 6453356

DOCUMENT-IDENTIFIER: US 6453356 B1

TITLE: Data exchange system and method

DATE-ISSUED: September 17, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
------	------	-------	----------	---------

Sheard; Nicolas C.	Palo Alto	CA
Fischer; Larry J.	Campbell	CA
Matthews; Richard W.	Redwood City	CA
Himabindu; Gurla	Sunnyvale	CA
Hu; Qilin	Mountain View	CA
Zheng; Wendy J.	Cupertino	CA
Mow; Boyle Y.	Freemont	CA

US-CL-CURRENT: 709/231

ABSTRACT:

A system and method for exchanging data between two or more applications includes a data exchange engine and a number of adapters associated with a corresponding number of applications. Each of the adapters is customized to interface with a corresponding application and transforms data being transferred between the application and the data exchange engine. Data produced by a particular application is converted from a technology dependent form to a technology independent form by the corresponding adapter. In one embodiment, the format associated with a data stream is disassociated from the informational content of the data stream by the adapter. The informational content of the data stream is then transformed by the adapter into a common or generic format. The data exchange engine receives data in a technology independent form from each of its associated adapters and coordinates the routing of informational content to particular adapters associated with applications that have requested specific informational content. The adapters receiving the informational content from the data exchange engine transform the informational content having the common format into a data format compatible with, or specific to, their associated applications. A queuing mechanism is employed to construct a reliable asynchronous or pseudo-synchronous interface between disparate applications and systems. The data exchange engine may apply business rules or logic when processing a request for particular informational content. User-specified routing logic may be applied by the data exchange engine to dispatch selected informational content to one or more destination applications.

56 Claims, 23 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 18

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequencies](#) | [Attachments](#) | [Claims](#) | [KMC](#) | [Drawn D.](#)

27. Document ID: US 6314501 B1

L4: Entry 27 of 40

File: USPT

Nov 6, 2001

US-PAT-NO: 6314501

DOCUMENT-IDENTIFIER: US 6314501 B1

TITLE: Computer system and method for operating multiple operating systems in different partitions of the computer system and for allowing the different partitions to communicate with one another through shared memory

DATE-ISSUED: November 6, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Gulick; Robert C.	Glenmoore	PA		
Morrissey; Douglas E.	Allentown	PA		
Caldarale; Charles Raymond	Minneapolis	MN		
Mikkelsen; Hans Christian	Afton	MN		
Vessey; Bruce Alan	Downington	PA		
Mauer; Sharon M	West Chester	PA		
Russ; Craig F.	Berwyn	PA		
Troxell; Eugene W.	King of Prussia	PA		
Connell; Maureen P.	Norristown	PA		
Hunter; James R.	Downington	PA		

US-CL-CURRENT: 711/153; 711/173, 711/209

ABSTRACT:

A computer system comprises a plurality of processing modules that can be configured into different partitions within the computer system, and a main memory. Each partition operates under the control of a separate operating system. At least one shared memory window is defined within the main memory to which multiple partitions have shared access, and each partition may also be assigned an exclusive memory window. Program code executing on different partitions enables those partitions to communicate with each other through the shared memory window. Means are also provided for mapping the physical address space of the processors in each partition to the respective exclusive memory windows assigned to each partition, so that the exclusive memory windows assigned to each partition appear to the respective operating systems executing on those partitions as if they all start at the same base address.

30 Claims, 36 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 34

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#) | [Claims](#) | [KOMC](#) | [Drawn D](#)

28. Document ID: US 6289460 B1

L4: Entry 28 of 40

File: USPT

Sep 11, 2001

US-PAT-NO: 6289460

DOCUMENT-IDENTIFIER: US 6289460 B1

**** See image for Certificate of Correction ****

TITLE: Document management system

DATE-ISSUED: September 11, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Hajmiraghah; Mir	Bellevue	WA		

US-CL-CURRENT: 713/200; 700/83, 705/53, 707/10, 707/103R

ABSTRACT:

A system for allowing predesignated users at remotely located computer-based systems to perform document management. Components of the system include public data network, a publication facility, a remote storage facility and a document manager computer-based system. The document manager computer-based system, the publication facility, the remote storage facility are all coupled to the computer-based systems used by the predesignated users over the public data network. The system allows authorized users from remote locations to perform secure document collaboration, share and archive documents, context index documents, digitally notarize documents, electronically file documents and publish documents.

20 Claims, 2 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 2

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#) | [Claims](#) | [KMC](#) | [Draw](#) | [De](#)

29. Document ID: US 6272129 B1

L4: Entry 29 of 40

File: USPT

Aug 7, 2001

US-PAT-NO: 6272129

DOCUMENT-IDENTIFIER: US 6272129 B1

TITLE: Dynamic allocation of wireless mobile nodes over an internet protocol (IP) network

DATE-ISSUED: August 7, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Dynarski; Richard J.	Glen Ellyn	IL		
Xu; Yingchun	Buffalo Grove	IL		
Bezaitis; Andrew	Chicago	IL		
Cichosz; Wayne A.	Buffalo Grove	IL		

US-CL-CURRENT: 370/356; 370/352, 370/401

ABSTRACT:

A method is described of automatically locating and connecting a mobile wireless communications device to a packet-switched network such as the Internet. An Internet Protocol (IP) packet from a terminal on the network, destined for receipt by the mobile device, is received at a home agent acting as a gateway or router linking the packet switched network to a second network, such as LAN, coupled to a wireless communications network. The home agent transmits an access-request message to an authentication server. The access-request message includes a destination IP address associated with the mobile device found in the IP packet. The authentication server responsively issues an access-accept message to the home agent if the mobile device is authorized to receive the IP packet. The access-

accept message comprises (a) information uniquely identifying said device, such as the IMSI/ESN number for the device, and (b) information identifying a network to use to locate said device. The home agent issues a message containing the information uniquely identifying the device to a mobile node location server. The mobile node location server maintains a table mapping IP addresses for a plurality of mobile communication devices to information uniquely identifying the devices. In the event that the mobile node location server does not find an IP address for the device in the table, the device is paged via the wireless communications network. In response to the page, the mobile device dials into the wireless communications network and second network and initiates a connection to the packet switched network whereby the IP packet is transmitted to the device.

5 Claims, 7 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 7

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequence](#) | [Attachments](#) | [Claims](#) | [KMC](#) | [Drawn D](#)

30. Document ID: US 6250548 B1

L4: Entry 30 of 40

File: USPT

Jun 26, 2001

US-PAT-NO: 6250548

DOCUMENT-IDENTIFIER: US 6250548 B1

TITLE: Electronic voting system

DATE-ISSUED: June 26, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
McClure; Neil	Lafayette	CO	80026	
Lohry; Kermit	Boulder	CO	80304	

US-CL-CURRENT: 235/51

ABSTRACT:

An electronic voting system with a headquarters unit, a plurality of precinct units, a plurality of voting stations associated with each precinct unit, and a plurality of mobile memory units (MMUs) to contain data that can be transported back and forth between the headquarters unit and the precinct units. The MMUs include FLASH memory, wherein each memory location can be written to once and read many times. Each memory location can thus only be subsequently written to after all the data in the entire FLASH memory has been erased. The system includes the ability to store images of the cast ballots at multiple locations for verification and authentication. The system includes the ability to store a direct representation of the voter's selections as displayed to the voter as a redundant image of the ballot. The system also includes the ability for each voting station to automatically read the particular ballot overlay thereon to verify the proper ballot style is being used. The system also includes the ability to communicate between the various components of the system when the components are in a storage configuration. The various components of the system can be folded from a deployed configuration into the storage configuration so that the largest two-dimensional

aspect in the storage configuration is a fraction of that in the deployed configuration. The system also includes a remote sensing terminal and a text-to-speech converter for use by disabled persons. An absentee ballot that can be read by the voting system is also provided as is the ability to vote over a computer network, such as the Internet.

31 Claims, 41 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 29

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#) | [Claims](#) | [KWMC](#) | [Drawn D...](#)

31. Document ID: US 6209037 B1

L4: Entry 31 of 40

File: USPT

Mar 27, 2001

US-PAT-NO: 6209037

DOCUMENT-IDENTIFIER: US 6209037 B1

TITLE: Motion control systems using communication map to facilitating communication with motion control hardware

DATE-ISSUED: March 27, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Brown; David W.	Bingen	WA		
Clark; Jay S.	Seattle	WA		

US-CL-CURRENT: 709/230; 700/1, 700/19, 700/56

ABSTRACT:

A system and method for facilitating communication between an application program and underlying motion control hardware in a hardware independent manner. A communication map maps a generic grid of mapping information cells to the actual information cells implemented by the particular hardware. Each actual information cell may be located in different areas and may transfer different values on each hardware platform. The communication map allows common functions to be used across a plurality of supported hardware device implementations.

1 Claims, 76 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 68

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#) | [Claims](#) | [KWMC](#) | [Drawn D...](#)

32. Document ID: US 6208345 B1

L4: Entry 32 of 40

File: USPT

Mar 27, 2001

US-PAT-NO: 6208345

DOCUMENT-IDENTIFIER: US 6208345 B1

TITLE: Visual data integration system and method

DATE-ISSUED: March 27, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Sheard; Nicolas C.	Palo Alto	CA		
Fischer; Larry J.	Campbell	CA		
Matthews; Richard W.	Redwood City	CA		
Gurla; Himabindu	Sunnyvale	CA		
Hu; Qilin	Mountain View	CA		
Zheng; Wendy J.	Cupertino	CA		
Mow; Boyle Y.	Freemont	CA		

US-CL-CURRENT: 345/853; 709/201, 709/223

ABSTRACT:

A visual data integration system architecture and methodology is disclosed. The system architecture includes a transport framework that represents a technology-independent integration mechanism that facilitates the exchange of technology-dependent data between disparate applications. A visual interface facilitates the design, deployment, and runtime monitoring of an integrated information system implementation. An integrated information system is developed visually through use of the visual interface by dragging and dropping components within a canvas area of the interface. The components are graphical representations of various telecommunications hardware and software elements, such as information stores, processors, input/output devices and the like. Various components may be packaged together as business extension modules that provide specific business integration capabilities. Interconnections between components are graphically established using a mouse to define sources and destinations of specified data. An underlying configuration/runtime information framework operating above and in concert with the transport framework effectively transforms the graphical interconnections into logical or physical interconnections, which results in the contemporaneous generation of an integrated runtime system. Format neutral data meta-models are employed to model the input and output data requirements of disparate systems and system components so as to remove any cross-dependencies that exist between the systems and technologies implicated in a data integration project. The visual interface enables runtime control and analysis of the business information and system aspects of an integrated system implementation. Visual views onto the live deployment provide consistent management and control for system integrators, business integrators, system managers, and business managers using a single visual interface.

46 Claims, 32 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 30

33. Document ID: US 6078325 A

L4: Entry 33 of 40

File: USPT

Jun 20, 2000

US-PAT-NO: 6078325

DOCUMENT-IDENTIFIER: US 6078325 A

TITLE: Object oriented customer information exchange system and method

DATE-ISSUED: June 20, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Jolissaint; Charles H.	Sunnyvale	CA		
Shem; Elliott B.	Santa Clara	CA		
McRae; Sunny N.	Fremont	CA		
Waln; Kenneth E.	San Jose	CA		
Duffy; John E.	Milpitas	CA		

US-CL-CURRENT: 345/839; 345/967, 718/102

ABSTRACT:

A computer-based information exchange system permits customers to request and receive different types of information from various sources. The operation of the system is controlled by an application created using object oriented techniques. These techniques permit simple and straightforward creation and modification of complex automation tasks involving numerous action-object pairs.

4 Claims, 13 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 13

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sentences	Attachments	Claims	KMC	Draw D
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 34. Document ID: US 5978804 A

L4: Entry 34 of 40

File: USPT

Nov 2, 1999

US-PAT-NO: 5978804

DOCUMENT-IDENTIFIER: US 5978804 A

TITLE: Natural products information system

DATE-ISSUED: November 2, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Dietzman; Gregg R.	Friday Harbor	WA	98250	

US-CL-CURRENT: 707/10; 707/104.1, 715/500.1

ABSTRACT:

Disclosed is a data processing system for processing natural product information entered into the system using a standardized entry protocol. The data processing system stores data such as chemical structures, geographic locations, taxonomy, genus synonyms, and textual descriptions and related natural products images such as images of the organisms, and geographic maps. The natural product images are correlated with the natural products data to allow display of the images with the related data. The data processing system further correlates the data products data and images stored in the system with remote databases, such as those containing existing commercially available data, linking the remote data thus correlated for display.

12 Claims, 30 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 28

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#) | [Claims](#) | [KMC](#) | [Drawn De](#)

35. Document ID: US 5892905 A

L4: Entry 35 of 40

File: USPT

Apr 6, 1999

US-PAT-NO: 5892905

DOCUMENT-IDENTIFIER: US 5892905 A

TITLE: Computer apparatus and method for providing a common user interface for software applications accessed via the world-wide web

DATE-ISSUED: April 6, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Brandt; Marcia Lynn	Rochester	MN		
Brown; Kenneth Edgar	Rochester	MN		
Dykes; Pernell James	Byron	MN		
Lindberg; Erik Duane	Rochester	MN		
Olson; Diane Elaine	Rochester	MN		
Selden; Jeffrey Edward	Jacksonville Beach	FL		
Snyder; Devon Daniel	Rochester	MN		
Walts; James Orrin	Rochester	MN		

US-CL-CURRENT: 713/201; 709/202, 709/229, 713/200

ABSTRACT:

The present invention provides the capability to easily access many different application programs over the WWW via a common user interface. By providing standard procedures, routines, tools, and software "hooks" for accessing software applications over the WWW, software developers can concentrate on the functionality of the application program and easily use HTML to provide a GUI interface for the application program. HTML is a well-known language which can be used by almost any computer system on the market today. In addition, since HTML is a fairly well

controlled and standardized language, new software application features can be added as they are developed and supported by HTML. In addition, since HTML is a widely adopted, non-proprietary technology, the present invention can provide open access to a large market for even very small software developers. Further, the present invention also allows software developers to adopt a standard access protocol, which allows them to provide support for any computer system which is capable of utilizing a HTML cognizant browser. Finally, by providing easy-to-implement, standardized solutions to the issues of user interface, authentication/security, and web transaction support, the common user interface of the present invention overcomes the limitations existing in previous solutions.

32 Claims, 26 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 22

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequencies](#) | [Attachments](#) | [Claims](#) | [KMC](#) | [Drawn D](#)

36. Document ID: US 5867385 A

L4: Entry 36 of 40

File: USPT

Feb 2, 1999

US-PAT-NO: 5867385

DOCUMENT-IDENTIFIER: US 5867385 A

**** See image for Certificate of Correction ****

TITLE: Motion control systems

DATE-ISSUED: February 2, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Brown; David W.	White Salmon	WA		
Clark; Jay S.	Seattle	WA		

US-CL-CURRENT: 700/56; 700/1, 700/186

ABSTRACT:

A system for motion control in which an application is developed that is independent from the actual motion control hardware used to implement the system. The system comprises a software system that employs an application programming interface comprising component functions and a service provider interface comprising driver functions. A system programmer writes an application that calls the component functions. Code associated with the component functions relates these functions to the driver functions. A hardware designer writes driver code that implements the driver functions on a given motion control hardware product. The driver functions are separated into core and extended driver functions. All software drivers implement the core driver functions, while the software drivers need not contain code for implementing the extended driver functions. If the software driver does not contain code to implement an extended driver function, the functionality of the extended driver function is obtained through a combination of core driver functions. The system programmer may also select one or more streams that allow the control commands to be communicated to, and response data to be communicated from, motion control hardware.

14 Claims, 72 Drawing figures
Exemplary Claim Number: 2
Number of Drawing Sheets: 64

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#) | [Claims](#) | [KMC](#) | [Drawn D](#)

37. Document ID: US 5691897 A

L4: Entry 37 of 40

File: USPT

Nov 25, 1997

US-PAT-NO: 5691897
DOCUMENT-IDENTIFIER: US 5691897 A
** See image for Certificate of Correction **

TITLE: Motion control systems

DATE-ISSUED: November 25, 1997

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Brown; David W.	White Salmon	WA		
Clark; Jay S.	Seattle	WA		

US-CL-CURRENT: 700/56; 318/568.1

ABSTRACT:

A system for motion control in which an application is developed that is independent from the actual motion control hardware used to implement the system. The system comprises a software system that employs an application programming interface comprising component functions and a service provider interface comprising driver functions. A system programmer writes an application that calls the component functions. Code associated with the component functions relates these functions to the driver functions. A hardware designer writes driver code that implements the driver functions on a given motion control hardware product. The driver functions are separated into core and extended driver functions. All software drivers implement the core driver functions, while the software drivers need not contain code for implementing the extended driver functions. If the software driver does not contain code to implement an extended driver function, the functionality of the extended driver function is obtained through a combination of core driver functions. The system programmer may also select one or more streams that allow the control commands to be communicated to, and response data to be communicated from, motion control hardware.

25 Claims, 62 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 58

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#) | [Claims](#) | [KMC](#) | [Drawn D](#)

38. Document ID: US 5490252 A

L4: Entry 38 of 40

File: USPT

Feb 6, 1996

US-PAT-NO: 5490252

DOCUMENT-IDENTIFIER: US 5490252 A

TITLE: System having central processor for transmitting generic packets to another processor to be altered and transmitting altered packets back to central processor for routing

DATE-ISSUED: February 6, 1996

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Macera; Mario	Newton	MA		
Jennings; William E.	Hopkinton	MA		
Josifovich; Dennis	Northborough	MA		
Kajos; George W.	Auburn	MA		
Mastroianni; John A.	Hopkinton	MA		
Neil; Francis E.	Chelmsford	MA		
Bennett; Victor	Ipswich	MA		
Bruns; Frank J.	Medfield	MA		
Deshpande; Gururaj	Andover	MA		
Greene; Jeremy	Stow	MA		

US-CL-CURRENT: 709/249, 370/402, 370/468, 709/246

ABSTRACT:

An internetworking system for exchanging packets of information between networks, the system comprising a network interface module for connecting a network to the system, receiving packets from the network in a native packet format used by the network and converting each received native packet to a packet having a generic format common to all networks connected to the system, and converting each of the generic packets to the native packet format for transmission to the network; a communication channel for carrying the generic packets to and from the network interface module, the channel having bandwidth; a first processing module for controlling dynamic allocation and deallocation of the channel bandwidth to the network connected to the system via the network interface module; and a second processing module for receiving all of the generic packets put on the channel by the network interface module, determining a destination network interface module for each of the generic packets on the channel, determining whether each of the generic packet needs to be bridged to the destination network interface module, and transmitting each of the generic packets determined to need bridging to the destination network interface module via the channel.

11 Claims, 20 Drawing figures

Exemplary Claim Number: 11

Number of Drawing Sheets: 10

Full	Title	Citation	Front	Review	Classification	Date	Reference	Searcher	Editor	Claims	KMC	Drawn
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39. Document ID: US 5455903 A

L4: Entry 39 of 40

File: USPT

Oct 3, 1995

US-PAT-NO: 5455903

DOCUMENT-IDENTIFIER: US 5455903 A

TITLE: Object oriented customer information exchange system and method

DATE-ISSUED: October 3, 1995

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Jolissaint; Charles H.	Sunnyvale	CA		
Shem; Elliott B.	Santa Clara	CA		
McRae; Xuan	Fremont	CA		
Waln; Kenneth E.	San Jose	CA		
Duffy; John E.	Milpitas	CA		

US-CL-CURRENT: 345/835; 345/965, 345/967, 715/503

ABSTRACT:

A computer-based information exchange system permits customers to request and receive different types of information from various sources. The operation of the system is controlled by an application created using object oriented techniques. These techniques permit simple and straightforward creation and modification of complex automation tasks involving numerous action-object pairs.

11 Claims, 13 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 13

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L4: Entry 40 of 40

File: USPT

Nov 22, 1994

US-PAT-NO: 5367609

DOCUMENT-IDENTIFIER: US 5367609 A

** See image for Certificate of Correction **

TITLE: Editing compressed and decompressed voice information simultaneously

DATE-ISSUED: November 22, 1994

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Hopper; Andrew B.	Palo Alto	CA		
Pessia; Dario	La Gaudie			FR

US-CL-CURRENT: 704/278; 379/214.01, 379/84, 379/88.08, 379/903

ABSTRACT:

A method and apparatus for editing the displayed voice wave form by marking the portion of interest on the screen is disclosed. Marked segment may then be deleted, for example, or copied into another segment in second voice editing window. In either case, pointers are established at the selected marker positions of the displayed voice segment and in the corresponding positions of uncompressed voice segments. The voice data is treated as a stream of fixed-length micro-segments, where there is a predictable correlation between the positions of the compressed and uncompressed data. In the implementation at hand, these micro-segments are 20 ms. in length. Editing is accomplished by modifying micro-segments in both the compressed and uncompressed segments simultaneously. When the user is satisfied with the result, the edited wave form is redrawn on the screen. The user may then SAVE the result, and the entire segment is rewritten to the data base, replacing the previous version. Only the compressed version is written, thus eliminating the need for a subsequent pass through the compression hardware with the associated compounding of distortion.

14 Claims, 21 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 14

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Developing administrative consoles using Microsoft Management Console

Tech Forum - Dr. Nitin Paranjape

Any organisation needs to use a large number of software applications and infrastructure products to automate business processes. Each application performs a specific set of functions for the end users. However, managing these applications is also an additional responsibility of the IT team. The user interface and methodology provided by each application for administration may be (and most often will be) different. Due to diversity, administrators need to learn a different user interface for different applications.



The purpose of Microsoft Management Console is to create a framework to standardise system management functionality.

Intended benefits

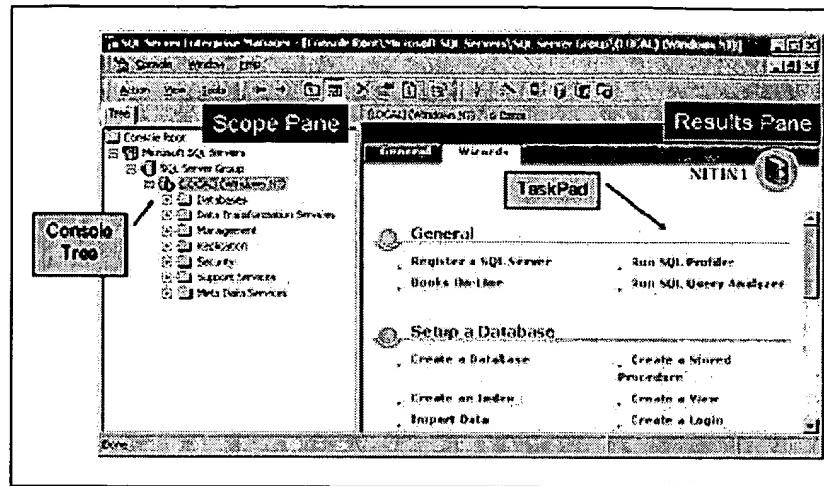
1. Reduction in training costs for administration—due to uniform user interface functionality.
2. Provide ready-to-use framework for developers to extend existing MMC applications or write new ones for their own products.
3. Provide the flexibility of mixing specific functional areas from different and creating a custom administrative console.

What is MMC?

You can use Microsoft Management Console (MMC) to create, save, and open administrative tools (called MMC consoles) that manage the hardware, software, and network components of your Windows system. The console DOES NOT contain the code to administer the system/application in question. It only provides a hosting environment for administrative tools. You can add the following items to MMC.

A console has various user interface components within it. These include boxes, context menus (menus which appear on right-clicking on a particular taskpads, wizards, toolbars and so on).

NO DATE



SnapIn

A SnapIn is a Component Object Model (COM) in-process server dynamic (DLL). This COM interface is situated between MMC and the SnapIn. The communicates with the SnapIn using a predefined methodology.

The SnapIn still needs to communicate with the application that it is administered. This communication is not controlled by MMC. The SnapIn developer can choose which method of communication to use between the SnapIn code and application.

Scope pane

The scope pane shows a hierarchical tree of nodes. Parent nodes can have level child nodes. Each node typically has a context menu as well as properties and actions associated with it.

Results pane

Depending upon the node selected in the scope pane tree view, the results pane will display various types of visual interfaces. These are:

1. List view
2. ActiveX Control showing special UI and behaviour
3. Custom Web Page
4. Taskpad

List view is the most common view where the results pane simply shows rows of information. An example of this view is the Event Viewer nodes, where logged events as rows and information about each event in columns.

Developing MMC SnapIns

You need MMC SDK for this purpose. This SDK provides the required COM interfaces and technical documentation required to generate a SnapIn. There are many interfaces available. Depending upon your design goals, you can implement the required interfaces.

Platform SDK includes a SnapIn

Item	What does it do?
Snap-In	This is the core of the MMC. The code which performs actual administrative tasks is provided by the snap-in.
ActiveX controls	For implementing special user interface.
Web page links	For online help / support escalation.
Taskpad views	Collection of tasks.
Tasks	Specific tasks that can be performed.

designer for Visual Basic. This designer is installed with the MMC samples from the Platform SDK.

This is a simple and fast way of generating custom SnapIns. It finally creates a SnapIn DLL file.

A detailed description of the exact steps and code to write a sample SnapIn is beyond the scope of this article.

However, I definitely suggest that all architects/developers working on products or complex projects, must try to explore providing MMC SnapIn administering their solutions. Deploying a SnapIn is very easy. All that you need is the DLL created from the SDK/Designer, Visual Basic and MMC runtimes.

Using WMI and Active directory

The actual code which administers your application/network or hardware with any communication mechanism or protocol. However, from the point of view of minimising coding and standardising the process of SnapIn development, (Windows Management Instrumentation) and Active Directory based integration should be preferred.

Windows Management Instrumentation (WMI) is based upon Web-Based Management (WBEM), an industry initiative to develop a standard technology for accessing management information in an enterprise environment. WMI uses the industry-standard Common Information Model (CIM) to represent system applications, networks, devices, and other managed objects in an enterprise environment.

Using WMI in writing SnapIns will ensure that the code written to access objects is based upon open and standard methodologies. The development effort is also reduced drastically in most environments by using WMI.

Feedback

Your feedback, suggestions, requests for covering specific topics or issues are welcome. Please send your comments to techforum@mediline.co.in



About the Author Dr Nitin Paranjape is the Chairman and CEO of Maestros (Mediline). He is a consultant with many organisations, covering appropriate technology utilisation, business application of relevant technology, application architecture and audit as well as knowledge transfer. He has authored more than 650 articles on various technology related subjects. He can be contacted at nitin@mediline.co.in

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- MDL® ISIS
- MDL® ISIS/Base
- MDL® ISIS/Draw
- MDL® ISIS for Excel
- MDL® ISIS/Host

• Isentris

- MDL® Base
- MDL® Core Interface
- MDL® Direct
- MDL® Draw Enterprise Edition
- MDL® Isentris™

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- MDL® Central Library
- MDL® Chemscape
- MDL® Cheshire
- MDL® Chime
- MDL® Chime Pro
- MDL® Report Manager

MDL® Discovery Experiment Management

MDL® Discovery Knowledge

MDL® Discovery Predictive Science

Products MDL® Discovery Framework

Key Features

MDL® Base: Key Features

General

- **Access to powerful data integration tools** enables the technology and format of the database to be hidden from the end-user, making searching and locating information easier. Capabilities include dynamic data pivoting, meta-data interpretation and presentation of data, database joining and re-orientation of data.
- **Wide Area Network performance**. A new modern design ensures that MDL Base operates in a global environment. This negates the need for expensive technology infrastructures and data duplication.
- **History tracking of queries and list logic** enables users to rapidly step backwards and forwards in a workflow, amalgamating data to acquire the data needed to progress research.
- **Personal-, group- and public queries, histories, forms and results** enables users to publish and share work and data with colleagues accelerating data transfer, data awareness and reducing replication of work.
- **MDL® Draw integration** for structure queries and rendering provides a common and well used drawing tool for creating the structural queries necessary to search and display structural data.
- **Print.** Once users have a view and relevant set of data, the print facility enables users to create hard copies of the data to share with colleagues, to file or add to lab notebooks.

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Search

- **Advanced MDL reaction and molecule search facilities.** Chemical structures provide the backbone to discovery informatics. Advanced chemical structure searching and data integration facilities in MDL Base ensures that organizations can explore and realize the potential of their available databases in a manner not previously possible.
- **Advanced query logic.** A user-friendly interface for query building provides And/Or/Not operators for users to create advanced searches.
- **Dynamic query building.** Combined with automatic form generation, the user can now search and browse any data source without administrative assistance. The user has additional functionality to update and save defined queries with or without query logic for multiple uses.

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Browse

- **Data re-orientation/re-association.** Powerful features on the server enable users with no technical background to change the hierarchy and context of data being displayed and searched. For a given set of results users can quickly change the focus. For example, chemists can change the display of results from showing all records by structure to showing all records by reaction or literature. Biologists can change the focus from displaying all records by Sample ID to displaying all data by assay name, project name or experiment name.
- **Live reaction and molecule rendering.** While browsing data, users can view live structures. Users are able to edit these structures for further queries or further hypothesis investigation.
- **Cherry picking** enables users to select individual records in a set of results and further filter the data based on the selected items. This facility is ideal for refining and manipulating data.
- **Drag and drop manipulation of data (List Logic).** Adding, combining and comparing results are vital for decision making and collating information for the next step in a workflow. List logic is a powerful tool for researchers and now MDL Base's easy-to-use

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list logic drag and drop interface means that all researchers can now use this advanced facility to manipulate data.

Form Design

- *Dynamic form building based on user permissions.* Administrators are able to provide end-users with permission to create and update forms for browsing and querying data. Using drag and drop facilities, users can create new forms or create personal forms from public forms with modifications to best suit their expertise and needs.
- *Advanced form design* enables power-users and form developers to customize forms with advanced features. This includes features such as form hyper-linking, action buttons, dictionary backed fields, tabbed forms, etc.

Development and Configuration

- *Visual wiring* for rapid and simplified drag and drop application development. Advanced privileges enable developers and administrators to configure user interfaces, build applications and define workflows without the need for programming. Drag and dropped components instantly link to associated components and the designer is able to use specific properties to define component behavior.
- *Customizable user interfaces.* XML based user-interface configuration, combined with drag and drop facilities to design forms with menus options, action buttons and data displays enables designers to create user interfaces that best match the need and experience of the user.
- *MDL® Cheshire integration facilities for chemical structure checking and calculations.* Structural data consistency for registration and browsing is essential in any discovery process involving small molecules. Facilities in MDL Base enable applications to check structure integrity for searches and registration, clean up structures or display structures consistently.

Last Updated 13-Apr-2004

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SR&ED Program

Administrative Guidelines for Software Development

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Administrative Guidelines for Software Development

2 SR&ED Project Definition

An "SR&ED project" must fall within the definition of SR&ED contained in subsection 248(1) of the *Income Tax Act*. Such a project comprises a set of interrelated activities that collectively are necessary for the attempt to achieve the specific scientific or technological advance(s) defined for the project, are required to overcome scientific or technological uncertainty, and are pursued through a systematic investigation by means of experiment or analysis performed by qualified individuals.

The SR&ED claim must be submitted showing the work structured as SR&ED projects so that the CCRA can determine eligibility. In whatever way companies choose to organize their software development efforts, the claim for tax credit purposes must only include the work that meets the SR&ED project definition above. Exhibit A gives a hypothetical example of how an SR&ED project might occur in the context of a company's product development project.

Exhibit A

In this case, the company project is to develop a new version of a software product. Note that the SR&ED project is a subset of the company project and comprises the work focussed on the technology development rather than the product features; it is not the same work described in different words. The example is intended only to illustrate SR&ED project **structure**; the field of work described is not an issue, nor whether the work is actually eligible. The point of the example is that the SR&ED project description can readily be evaluated to determine eligibility while the company project description cannot.

Company project

SR&ED project

Project Title

Property Records Management System (PRMS) Version 4.0

Project Title

Using a Data Communications Approach to Improve a Custom Data Management System (DMS)

Objective

To develop Version 4.0 of PRMS, an easy-to-use full-featured property records management system.

Technological Objective

To at least double DMS speed over that achieved in PRMS Version 3.5.

Background

XYZ Co. is a leading edge software products company. Our first PRMS product was developed in 1992. It is the most comprehensive and easy-to-use product in its class. We have installed over 100 licences to date.

Background

XYZ Co. has developed a proprietary DMS as part of its PRMS product. The DMS works well with small data sets, but has excessive access times (>> 30 seconds) with large databases (>> 1 gigabyte (GB)).

Project Activity	Project Activity
<p>This project was undertaken to develop PRMS 4.0, a new version required to maintain our competitive edge. Activities included:</p> <ul style="list-style-type: none"> ● review of customer requirements and competing products; ● preparation of a functional specification; ● development of prototypes; ● design and development of: <ul style="list-style-type: none"> ○ faster query and update capability; ○ easier to use user interface; ○ user defined field edits; ○ expanded import/export facilities; ○ new mail merge utility; ○ multilingual capability; ● alpha testing internal to XYZ Co.; ● beta testing with selected customers. 	<p>A literature review showed that the relational data model used in the DMS could be inefficient in some circumstances. We decided to determine if a data communications model would achieve processing efficiencies, at the expense of additional storage space. A prototype packet data model DMS was created that was 75% faster than the existing data manager. Comprehensive benchmark tests were conducted to compare performance between the two data models. While some of the tables could be processed more effectively if they were in packet form, others were best managed through relational techniques.</p> <p>A hybrid approach involving both relational and packet data management techniques was experimentally employed in upgrading from PRMS 3.5 to 4.0.</p>
Advanced Features	Technological Advances
<ul style="list-style-type: none"> ● much faster query and update capability; ● re-designed, easier-to-use user interface; ● addition of user-defined field edits; ● expanded import/export facilities; ● new mail merge utility and multilingual capability; ● ability to work with databases > 1 GB. 	<p>We developed a hybrid data management technique that improved query and update capability from > 30 seconds to < 15 seconds in most problem situations. This new technique allowed PRMS to store and access databases > 1 GB (not possible with competing products at the time).</p>
Project Uncertainties	Technological Uncertainties
<ul style="list-style-type: none"> ● uncertain what features were required by customers; ● uncertain how to store user-defined edit rules; ● uncertain how to provide bilingual prompts and error messages without impacting performance; ● uncertain how to reduce complexity of the product; ● uncertain how to access 	<ul style="list-style-type: none"> ● impact on performance of using a data model designed for data communications in a relational environment could not be predicted; ● inefficiencies resulting from a hybrid model using both relational and packet access against the same database might have reduced the improvements quantified for the prototype packet model DMS.

- large databases faster;
- uncertain how to manage random access memory.

Subsection 248(1) of the Act embodies the basic principle that SR&ED is a systematic investigation or search performed for scientific or technological advancement. As a result, the taxpayer must define the objective or objectives of the SR&ED project in scientific or technological terms, stating clearly the advance or advances to be sought, and must show that all the work performed on the SR&ED project was systematically directed towards the attempt to achieve that technological advancement. If the SR&ED project fails to achieve the intended technological advancement or branches off in a new direction, the work done can still be eligible if it meets the criteria, and a new SR&ED project with a new technological advancement goal might be initiated.

The SR&ED project is tracked and claimed on the basis of the technology being advanced, not based on the benefits to the company or to users arising from the new features found in the software product or information system. Exhibit A illustrates that the taxpayer must correctly identify an SR&ED project in the context of a software product development. An information system usually addresses a business process that involves information processing and includes technology as one element. The technology may or may not have arisen through, or incorporate, SR&ED performed by the taxpayer. The SR&ED project is directly concerned only with the process of developing technology and comprises the activities that are necessary for the attempt to achieve the technological advancement. SR&ED project descriptions must be structured according to areas of science or technology. SR&ED is only indirectly concerned with the characteristics of software products, information systems, or business processes, and then only if their development requires achieving technological advancement.

Management information systems (MIS) contain software programs that help collect, manipulate, and present data relating to the operational processes of the taxpayer's business. MIS functions include accounting, payroll, personnel records management, sales lead tracking, manufacturing or production management, inventory control, distribution, customer service, management reporting, electronic mail, electronic data interchange, and other similar software applications. Care must be taken to separate the **benefits of** automating or improving the operations of a business from the **advances** in the underlying science or technology that are being attempted. The benefits are not relevant to determining eligibility. While MIS projects may contain SR&ED, in many cases an SR&ED project will represent only a minor part of an MIS project.

The SR&ED project definition is not intended to support the subdividing of SR&ED projects that have been correctly identified into smaller and possibly ineligible activities. The concept of the "set of interrelated activities that collectively are necessary..." embodied in the SR&ED project definition ensures that a project that is performed for the purpose of technological advancement is evaluated as a unit, provided that all the activities identified for the project are commensurate with the needs of, and directly support, the attempt to achieve the technological advancement, as required by subsection 248(1) of the Act.

The integration of several parts of a system may be or may include an SR&ED project. It may be valid to speak of system uncertainty, as discussed in section 3.2, at the level of the integration of the system.



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Access the SQL Server Namespace Library

Build a customized version of the SQL Server Enterprise Manager to take control of who can do what with your databases.

by *Francesco Balena*

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Not all database administrators are created equal. You might want to give power users some limited administrative capabilities, such as scheduling jobs, creating a Data Transformation Services (DTS) package, or creating a full-text catalog. In these cases, SQL Server's built-in security might not be fine-grained enough to grant them access through the SQL Server Enterprise Manager (EM), so you must devise an alternative solution. One possible approach: You could create a custom user interface to SQL Server's administration tools through the Distributed Management Objects (SQL-DMO) library. But you'd need to exert a lot of effort duplicating the EM's look and feel so users aren't disoriented. Fortunately, you can implement a far better solution based on SQL Server's Namespace library.

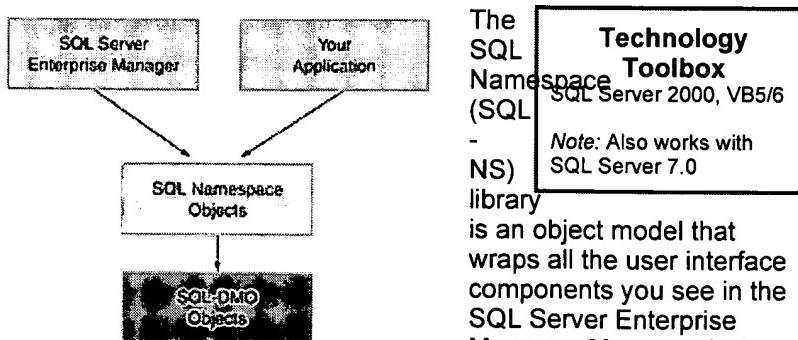


Figure 1. Build on Top of the SQL-NS Library.

The SQL Namespace Toolbox (SQL-NS) is an object model that wraps all the user interface components you see in the SQL Server Enterprise Manager. More precisely, the Microsoft Management Console (MMC) snap-in displays its dialog boxes

through the SQL-NS library, which in turn uses the SQL-DMO library to perform the actual administrative jobs (see Figure 1). The good news: You can access the SQL-NS library from your own application. So you can provide exactly the same interface as the EM while retaining control of what features each individual can or can't access. The SQL-NS library is fully Automation-compliant, so you can access

it using virtually any programming language and environment, including Visual Basic, VBScript, Windows Script Host, and Visual C++.

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Access the SQL Server Namespace Library (Continued)

I'll describe the structure of the SQL-NS library, then show you how to connect a SQL-NS app to SQL Server, navigate the SQL-NS object model, execute a SQL-NS command, and turn a SQL-NS object into a corresponding SQL-DMO object. Finally, I'll briefly introduce the sample app accompanying this article.

One of the SQL-NS library's peculiarities is its "flattened" object model: It contains only four classes, each exposing a handful of properties and methods. And you don't have to worry about events because no SQL-NS object raises an event. Yet this library provides access to the many windows the EM uses.

Instead of providing one distinct class for each EM window, the SQL-NS object model uses a different approach. Each EM dialog is identified by a 32-bit handle, and the SQL-NS library allows you to get the handle of the top-most nodes in the EM hierarchy, enumerate the handles of an element's child nodes, and bring up a dialog box with a given handle. This approach might sound counterintuitive—at least when compared with other, more traditional object models—but it offers unparalleled flexibility, as you'll see shortly.

The SQL-NS model has four elements: three objects and one collection (see Figure 2). SQLNamespace is the model's main object: It serves as the entry point to the library and provides all the properties and methods for navigating the EM hierarchy. The SQLNamespaceObject object represents a node in the EM hierarchy, such as a database, table, or job. Each SQLNamespaceObject is identified by its Handle property and exposes a Commands property, which returns a SQLNamespaceCommands collection. This collection gathers all the SQLNamespaceCommand objects for that node, where each SQLNamespaceCommand object represents an individual EM dialog box. For example, a database node's SQLNamespaceCommands collection contains the commands for displaying all the dialog boxes related to that specific database, such as the Properties and Backup Database windows. The SQLNamespaceCommands collection also gives you access to all the wizards you can run on that node, such as the Import Data and Database Maintenance Plan wizards. In general, the elements in this collection let you execute all the commands you find in the context menu for a given node in the EM tree as it appears in the MMC.

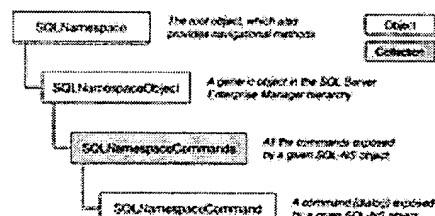


Figure 2. Only Four Classes in the Whole Model.

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Access the SQL Server Namespace Library (Continued)

Both SQL Server 7.0 and SQL Server 2000 include the SQL-NS library. Thanks to the flattened object model and its intrinsic extensibility, a SQL-NS application written for SQL Server 7.0 can work under SQL Server 2000 without any change. When I migrated my SQL-NS apps from SQL Server 7.0 to SQL Server 2000, they worked unchanged with the multiple installations you can create under SQL Server 2000.

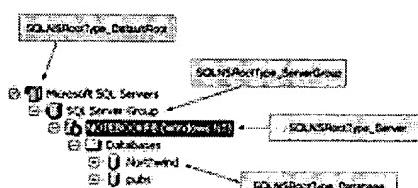


Figure 3. Connect at the Level You Like Most.

The SQL-NS library is implemented in the Sqlns.dll file you can find in the \Binn directory under the main SQL Server 7.0 installation directory or in the \80\Tools\Binn directory under the SQL Server 2000 installation directory. It uses the localized resources in the Sqlns.rll file, whose

location depends on the Unicode collation locale. For example, you can find this file in the \Binn\Resource\1033 directory for the General Unicode collation. You must add a reference to the Microsoft SQLNamespace Object Library before you can use it through early binding in your VB application.

Connect to the SQL-NS Model

The first action every SQL-NS application must perform is the connection to SQL Server. This operation is necessary only once in the application's life. You can connect to different levels of the SQL-NS model: the default root, a SQL Server group, a specific SQL Server, or a given database (see Figure 3). You establish the connection in all cases by creating a SQLNamespace object and invoking its Initialize method:

```
Dim nslib As New SQLNS.SQLNamespace
nslib.Initialize "MyNSApp",
    SQLNSRootType_DefaultRoot
```

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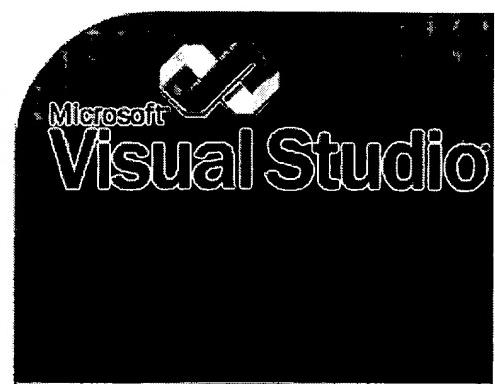
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WBT Manager Learning Management System

Introduction

WBT Manager™ is a Learning Management System (LMS) that deploys, launches and tracks e-learning courses. With WBT Manager™ you can register and enroll your students into e-learning courses or certification classes and view reports of their progress. Students can be organized into organizations and departments. Administration can be decentralized to organization-level or department-level administrators.

WBT Manager was designed specifically to manage Web-enabled content and was the first LMS to be certified as compliant with AGR 010, the AICC guideline for Web-based LMS.

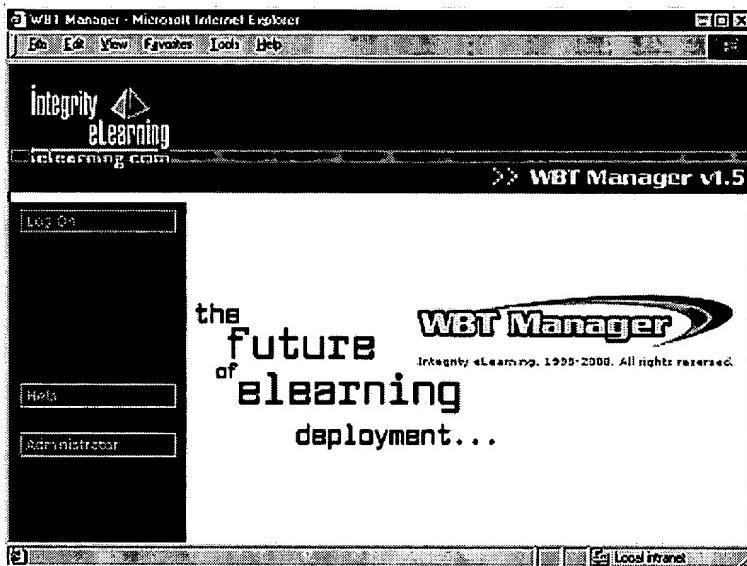


Fig. 1: WBT Manager Home Page

Features

WBT Manager features include:

- AICC-certified as compliant with AGR 010
- Easy deployment, monitoring, and control of **any AICC-compliant** Web-based courses
- Utility for import/export of **AICC-compliant** Web-based courses only
- Easy integration with third-party authoring, assessment, and testing tools
- Administrative tracking by course, student, department, organization, and certification class
- Import kit for the import of bulk student data from other enterprise databases
- Scripting interface for creating custom student self-registration and enrollment forms
- Tested and supported for use with Microsoft Access, Microsoft SQL Server, and Oracle DBMS
- Customizable appearance of GUI and menus in Web modules (student and Web-based administrator interfaces)
- Ten user-definable fields available for custom student data
- Integration with client's choice of e-commerce solution using the external e-commerce scripting kit
- Batch Maintenance Module allows the system administrator to periodically purge billing and history tables and to drop students from completed courses or courses in which they have been inactive for a specified period
- Automatic e-mail notifications of various events occur, such as students being notified that they have been enrolled in a new course or administrators being notified when a student has completed a course
- Translation-ready for single byte languages – Spanish (System admin. and Web modules) and French (Web modules only) versions already available

WBT Manager Modules

WBT Manager consists of two modules:

- The Web Server module application resides on the Web server. This module provides browser-based interfaces for both students and Web-based administrators.
- The System Administrator Module resides on a network workstation and provides the System Administrator interface.

Both modules communicate with the WBT Manager database through ODBC connections as shown here:

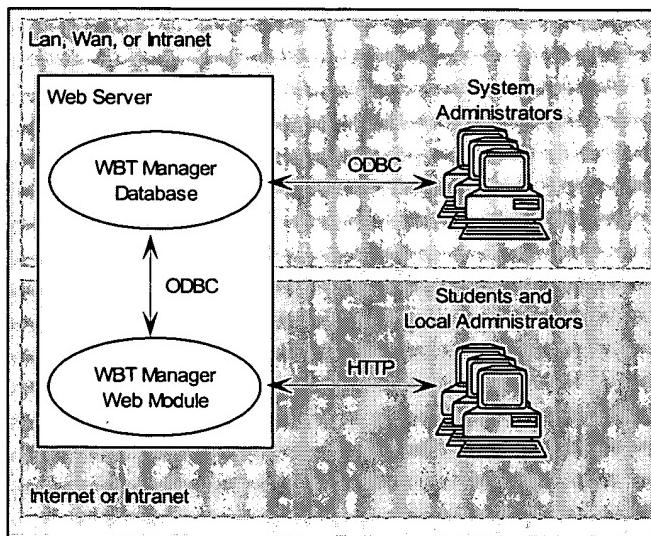


Fig. 2: WBT Manager showing default installation. MS Access database resides physically on the Web server.

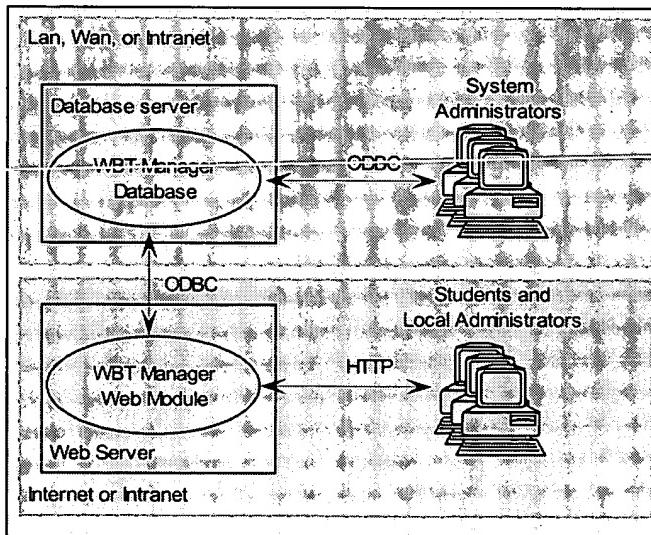


Fig. 3: WBT Manager showing installation with a DBMS on a separate server.

The System Administrator Module updates the database directly through its database connection. User requests are translated into SQL statements that retrieve data from or store data in the database.

WBT Manager Modules, continued

The student and Web-based administrator interfaces have no direct connection with the database. The Web Server Module generates forms and links on the HTML pages sent to the user's Web browser, and the information is sent back to the Web Server Module. The Web Server Module translates the data into SQL statements to retrieve data from or store data in the database.

System Administration

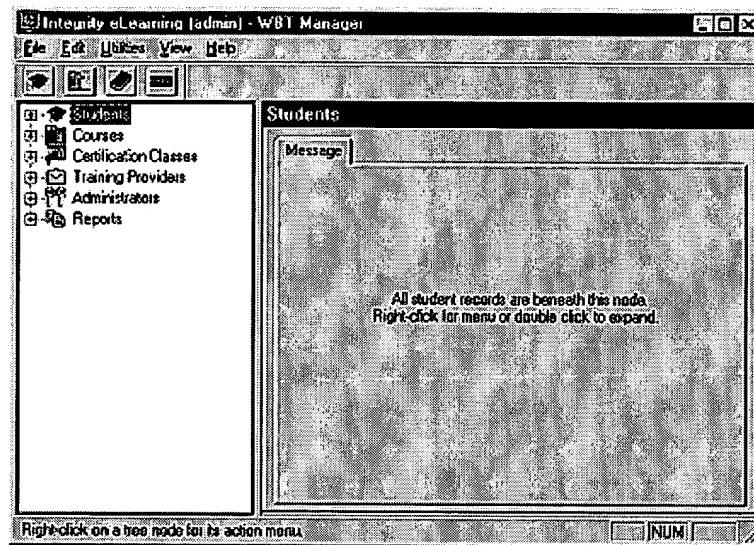


Fig. 4: WBT Manager System Administrator Module

The main system administration activities are carried out via a traditional client/server interface. Functions that the **System Administrator** can perform include:

- Import or export any AIICC-compliant course directly using the built-in import/export utility
- Add/edit students, departments, organizations, and Web-based administrators
- Add/edit courses, lessons, certification classes
- Enroll whole departments of students in courses or certification classes in a single operation using the user-friendly drag and drop interface
- Track the status of courses by organization, department, or certification class
- Access a hierarchical tree-view of students, courses, certification classes, training providers, administrators, and reports
- Set up internal/external billing options including billing by the student hour or course unit
- Control access to courses (start date and cut-off date) and billing at the individual student level
- Customize appearance of the student menus (by organization and department) and course menus using built-in HTML code windows
- Set up off-line (shadow) lesson tracking for ILT and other learning activities
- Track certifications by creating certification classes and designating certificate expiration
- View and print dozens of predefined standard administrative reports with customizable selections
- Create custom reports easily
- Integrate collaboration tools using built-in HTML hooks
- Import bulk student data from other enterprise databases using the import kit provided
- Use the Batch Maintenance Module to periodically purge billing and history tables, drop students from completed courses or courses in which they have been inactive for a specified period

System Administration, continued

- Set up automatic e-mail notifications to be sent to students and administrators when various events occur.

Students can be notified when:
 - they have been enrolled in a new course.
 - a course they are enrolled in is nearing expiration
 - a certificate they hold is nearing expirationAdministrators can be notified when:
 - a student has completed a course
 - a student has completed a certification class
 - a student is approaching the cutoff date for a course
- Designate specific courses to be associated with specific organizations with options including:
 - Automatically assigning the course to all new students entering the organization
 - Restricting which courses are available to be assigned by Web-based administrators
- Define up to ten custom fields for student data
- Set a time limit for course completion. The "clock starts ticking" the first time a user launches one of the course's lessons. At the end of the time limit, the course is no longer available.

Local (Web-based) Administration



Fig. 5: WBT Manager Local (Web-based) Administrator Menu

The system administrator can devolve student administration upon organization-level or department-level administrators. These administrators use a Web browser-based interface to access the WBT Manager database. It is possible to customize which tasks will be assigned to each individual administrator. Functions that can be assigned to **Local (Web-based) Administrators** include:

- Add/edit students
- Add/edit administrators and departments (organization and system administrators only)
- Enroll students in courses and certification classes
- Control course access (start date and cut-off date) at the individual student level
- Search for students and courses
- Track students' progress and results

Local Administration, continued

- Enter and edit students' results for non-AICC compliant courses
- View and print predefined standard administrative reports
- Customize the appearance of the student menus by organization and/or department

Students

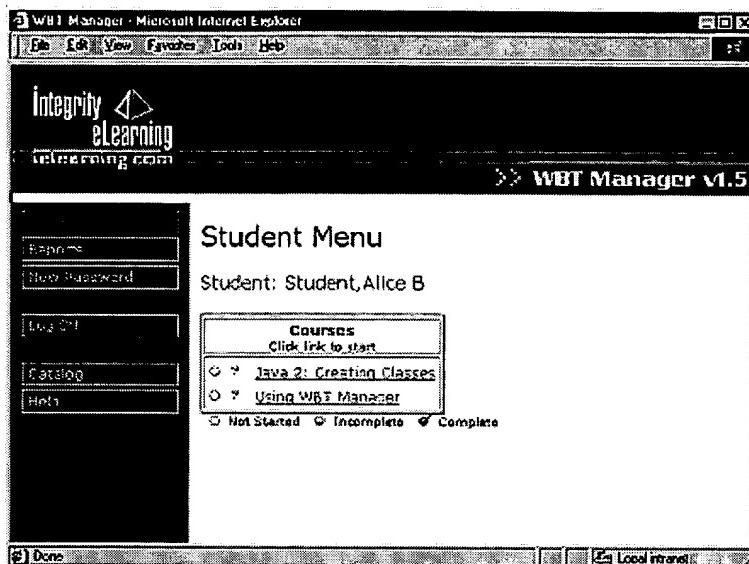


Fig. 6: WBT Manager Student Menu

Students log onto WBT Manager™ via their Web browsers. Here they are able to:

- Access their personal menu of assigned WBT and other off-line learning activities
- Track their own progress in courses and certification classes using a choice of built-in reports
- Search course catalog and self-enroll in designated courses